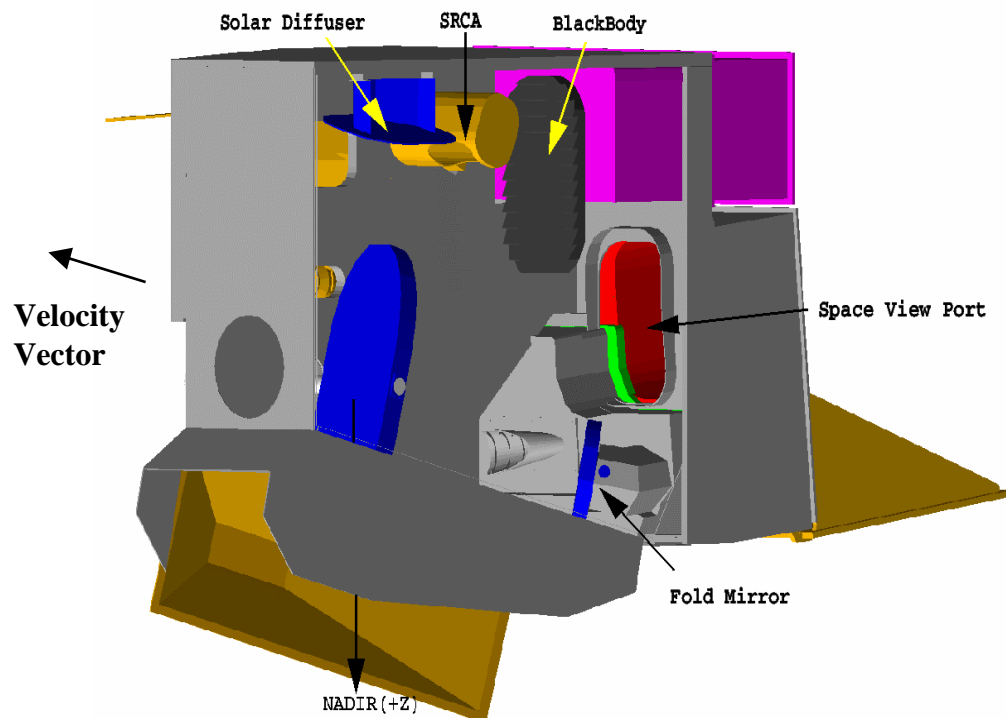
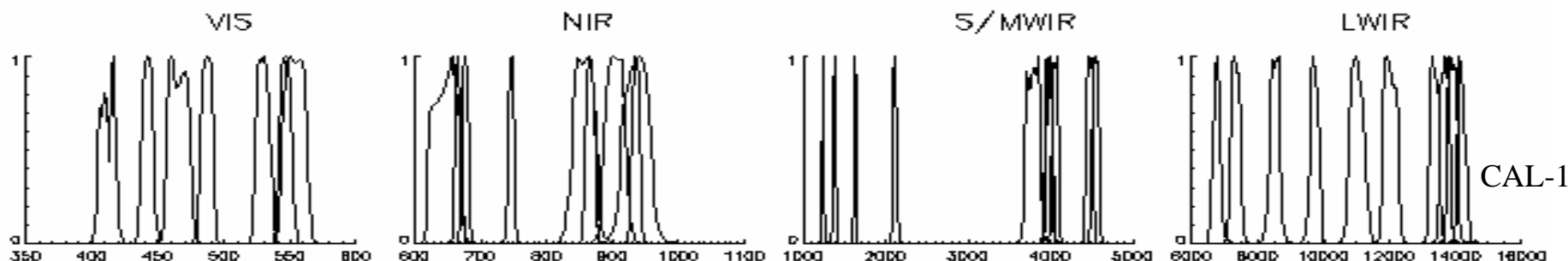




MODerate Resolution Imaging Spectroradiometer (MODIS)



- 36 Spectral Bands (490 detectors) cover the wavelength range from 0.4 to 14.5 μm
- Spatial resolution at nadir: 250, 500 and 1000 meters (depending on band)
- SD/SDSM, SRCA, and Blackbody On-Board Calibrators
- 12 bit (1:4096) dynamic range
- 2-sided Paddle Wheel Scan Mirror scans 2330 km swath





Summary of MODIS Calibration Workshop for 22 January 2001

We must find a time for weekly telephone conference calls with
key players:

MCST

Atmospheres (Wisconsin)

Oceans (Miami)

Land

SBRS

Considering Wednesdays at 2:00 PM for an hour.



Operations & Computer Infrastructure



- Operations:
 - Consumables (lamps, planned door operations) at or within planned lifetimes for 6 year mission
 - Temperature aging characteristics appear normal
 - Next cooler outgas ~ to be at least 1-2 yrs away
- MCST compute infrastructure
 - Connected to G-DAAC on T-3 line
 - Smoothly handling up to 88 GB/day
 - Lat/long and overflight planner tools publicly available



L1B Code and RSB Algo Status



- Code and LUT histories on MCSTweb
 - Installed LUT architecture to support reprocessing via time-tagging
 - 6 code versions, and 6 LUT updates
- Reviewed RSB and TEB algorithms
 - Will extend descriptions to develop replacement ATBD for the L1B production code
 - Reviewed Caveats by measurement region
 - May need sensor polarization characteristics to get proper calibrations channel to channel



RSB pt 2



- Demonstrated that B14 H may be recalibrated from B14L with uncertainty of 1% in addition to B14L uncertainty
- Need look at calibration fitting term for 0-radiance intercept
- Further study needed for RVS, MS and channel to channel image smoothness studies
- Some evidence that we need rethink calibration strategy using sensor polarization characteristics
- Electronic cross-talk mitigated > Oct 31



TEB Algorithm



- Deep-space calibration maneuver still needed for TEB RVS
- Demonstrated recalibrate IR bands on-orbit to within several 10s mK for measurements within OBC temperature range
- Need review OBC-BB emissivity calculations
- Further study needed for RVS, MS and channel to channel image smoothness studies



TEB Algorithm pt 2



- Thermal cooler intermediate window temperature drift introduces small Band 27 anomalous drift
- Mirror rotation correlated noise variations found in pre-launch calibration data sets and on orbit
 - Induces errors in scene smoothing coefficients
 - Present in Aqua sensor as well
 - Will be complication in preparations for reprocessing



TEB Algorithm pt 3



- Improvements made in corrections for optical leaks, SWIR thermal and B31 into 32-36
 - Fine tuning still desired here though



SRCA Summary



- Spectral bands generally have not shifted
 - Band 8 shows some anomalous characteristics
- Spatial patterns in agreement with those determined by earth-location studies
- Provided helpful information for electronic studies



SD/SDSM



- Small ripples in SD signal induced by SD screen
 - Screen needed for oceans bands
 - May be contributor to problems with channel to channel calibrations
- Modest ripples in SDSM induced by SDSM screen
 - Have not yet introduced SDSM results into algorithm due to issues with these screen induced structures



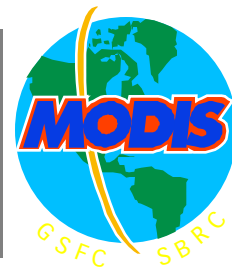
Science Team Members Comments



- B2 saturation over high cloud
- Some of SWIR bands sub-frame difference B5 saturation concerns remain
 - Evidence of out of family B5 detector in data set
- Band 26 residual thermal leak, may need added tuning with B25, may need to consider algorithm based on various geophysical
- Significant improvement in PC cross-talk but may want to further tune B36 correction
- Some IR validation studies presented



Issues



- Mirror rotation correlated noise important issue that needs more attention
- ADC now as good as we can get on Terra
- Residual electronic cross-talk still present
 - All detectors on, but some new noisy detector values
- Surface smoothing studies presented
 - Seem to be not useful due to sensor/scene (polarization?) characteristics



Issues pt 2



- Confirmation of stability within an orbit needs further attention
 - Evidence of instability in some temperature monitoring telemetry points
- SD degradation at year end
 - 2.5%, 1.5%, 1% and 0.5% at 410 nm, 465 nm, 530 nm, and 750 nm respectively
 - Added 7% to ~2% degradation in rest of system, on MS1 and maybe 1-3% more than that on MS2
- General agreement in degradation from SRCA and lunar observations